

EXHIBIT D

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN JOSE DIVISION

CISCO SYSTEMS, INC.,)
)
Plaintiff,)
) Case No.
vs.) 5:14-cv-05344-BLF (PSG)
)
ARISTA NETWORKS, INC.,)
)
Defendant.)
_____)

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

VIDEOTAPED DEPOSITION OF KIRK LOUGHEED
Palo Alto, California
Friday, November 20, 2015
Volume I

Reported by:
CARLA SOARES
CSR No. 5908
Job No. 2187110
Pages 1 - 189

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VIDEOTAPED DEPOSITION OF KIRK LOUGHEED,
Volume I, taken on behalf of Defendant, at
650 Page Mill Road, Palo Alto, California, beginning
at 9:19 a.m., and ending at 6:15 p.m., on Friday,
November 20, 2015, before CARLA SOARES, Certified
Shorthand Reporter No. 5908.

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1 APPEARANCES (Continued) :

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12

13 ALSO PRESENT: Sean Grant, Video Operator

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1 Palo Alto, California 08:37:04
2 Friday, November 20, 2015
3 9:19 a.m.
4
5 P R O C E E D I N G S 08:37:10
6 THE VIDEO OPERATOR: Good morning. We're
7 on the record. The time is 9:19 a.m., and the date
8 is November 20th, 2015. This begins the videotaped
9 deposition of Kirk Loughheed.
10 My name is Sean Grant, here with our court 09:19:25
11 reporter, Carla Soares. We're here from Veritext
12 Legal Solutions at the request of counsel for
13 defendant.
14 This deposition is being held at Wilson
15 Sonsini in Palo Alto, California. The caption of 09:19:34
16 this case is Cisco Systems, Inc., versus Arista
17 Networks, Inc., Case No. 5:14-CV-05344-BLF.
18 Please note that audio- and
19 video-recording will take place unless all parties
20 have agreed to go off the record. Microphones are 09:19:54
21 sensitive and may pick up whispers, private
22 conversations, or cellular interference.
23 At this time, will counsel please identify
24 themselves and state whom they represent.
25 MR. FERRALL: Brian Ferrall of Kecker & 09:20:06

1 Van Nest representing the defendant Arista Networks. 09:20:06
2 MR. WONG: Ryan Wong from Keker & Van Nest
3 representing Arista Networks.
4 MR. NEUKOM: John Neukom representing
5 Cisco and also the witness. 09:20:16
6 MR. SIMMONS: Joshua Simmons from Kirkland
7 & Ellis representing Cisco and the witness.
8 THE VIDEO OPERATOR: Thank you.
9 Will the certified court reporter please
10 swear in the witness. 09:20:23
11 KIRK LOUGHEED,
12 having been administered an oath, was examined and
13 testified as follows:
14 THE VIDEO OPERATOR: Thank you.
15 Counsel? 09:20:34
16 EXAMINATION
17 BY MR. FERRALL:
18 Q Please state your full name.
19 A Kirk Stewart Lougheed.
20 Q What's your address, Mr. Lougheed? 09:20:39
21 A My personal address?
22 Q Yes, please.
23 A 18691 Casablanca Lane in Saratoga.
24 Q Have you ever sat for a deposition before?
25 A Once. 09:20:55

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1 calls for a conclusion. 13:03:06

2 THE WITNESS: Documents whose name I do
3 not recall.

4 BY MR. FERRALL:

5 Q Can you describe generally what they were? 13:03:16

6 A They were documents that described a
7 packet format and described an associated state
8 machine.

9 Q Is the address resolution protocol
10 referred to simply by the acronym ARP? 13:03:59

11 A There's a general concept of an address
12 resolution protocol, and then there's one, possibly
13 more, that are -- may be described in various
14 documents from the IETF.

15 Q When did you first hear -- have you ever 13:04:52
16 heard the address resolution protocol abbreviated as
17 ARP?

18 A Yes.

19 Q When did you first hear that abbreviation?

20 A I don't recall -- I don't recall the 13:05:17
21 precise time.

22 Q Was it while you were still at Stanford?

23 A It certainly could have been.

24 Q Did you develop any features for the
25 address resolution protocol yourself? 13:05:52

1 MR. NEUKOM: Objection. Vague. 13:05:56

2 THE WITNESS: I do not understand your
3 question. What do you mean, develop features for
4 the address resolution protocol?

5 BY MR. FERRALL: 13:06:12

6 Q Fair enough. Let me ask it a different
7 way.

8 Did you contribute to any IETF RFC
9 relating to the address resolution protocol?

10 MR. NEUKOM: Objection. Asked and 13:06:27
11 answered.

12 THE WITNESS: No.

13 BY MR. FERRALL:

14 Q Did you develop features at -- while at
15 Cisco that relate to ARP, if you don't mind me using 13:06:44
16 the acronym?

17 A I don't understand the question.

18 Q Who is Glenn Truitt?

19 A He's a -- at my time at Stanford, he was a
20 graduate student. 13:08:37

21 Q Did you work with him while at Stanford?

22 A Briefly.

23 Q In what capacity?

24 A I recollect that he may have written a
25 user guide to the software at the time, but that's 13:09:21

1 those still saved somewhere? 13:42:13

2 A I had a copy in my Cisco directory.

3 Q Do you know, do you still have a copy of
4 those files somewhere?

5 A Yes. 13:42:30

6 Q Where?

7 A I believe they're still on my Cisco
8 directory.

9 Q Do you remember the day that you left

10 Stanford? 13:43:13

11 A Yes.

12 Q What date was that?

13 A The Friday before -- whenever Bastille Day

14 was. I left on a Friday in July of '86. The

15 following Monday was Bastille Day. 13:43:44

16 Q July 11th, by my calculation.

17 A It could very well be.

18 Q Okay. Why do you associate it with

19 Bastille Day, just out of curiosity?

20 A I thought it was a striking coincidence. 13:44:03

21 Q How so?

22 A It's a major event.

23 Q Why was it a major event?

24 A I had been working for six years at

25 Stanford, and that was the day I resigned. 13:44:22

1 Q Why did you leave Stanford? 13:44:24

2 A To help get Cisco off the ground.

3 Q Was it a friendly departure from Stanford?

4 A No.

5 Q How so? In what way was it not friendly? 13:44:54

6 A My boss asked for a current copy of the

7 sources, and I declined to give him a current copy.

8 Q Who was your boss?

9 A Steve Hanson.

10 Q When you say "a current copy of the 13:45:42

11 sources," you mean the source code that you had

12 worked on?

13 A Yes.

14 Q Why did you decline to give him a copy of

15 the source code you were working on? 13:45:51

16 A I don't recall, because he had the stuff

17 on the backups. There was stuff on backups.

18 Q And you don't recall why you wouldn't give

19 him a copy?

20 A I was probably feeling mulish and 13:46:23

21 irritable.

22 Q You got paid while you were an employee at

23 Stanford, right?

24 A Yep.

25 Q You knew at that time you were going to 13:46:46

1 take that software to help Cisco, right? 13:46:47

2 A Yes.

3 Q Did you actually have the software on you

4 that day when you resigned from Stanford?

5 A No. 13:47:10

6 Q Where was your copy of it?

7 A It was on a UNIX system at Len and Sandy's

8 house.

9 Q So you had already provided that software

10 to Cisco by then, by the time you resigned from 13:47:32

11 Stanford?

12 A Yes.

13 Q Did anyone from Stanford give you

14 permission to take that software and put it on a

15 Cisco computer? 13:47:48

16 A No.

17 Q Did you think that that was proper to do?

18 A At the time I thought it was proper.

19 Q Why was that?

20 A I had written a good chunk of that 13:48:19

21 software.

22 Q And that, to you, was reason to be able to

23 take it to Cisco in your mind at the time?

24 A In my mind at the time.

25 Q What about the part of that software that 13:48:45

1 was written by others? Why did you think you could 13:48:49
2 take that?
3 A I had not considered it.
4 Q Were you involved at all in the subsequent
5 legal dispute with Stanford? 13:49:13
6 A No.
7 Q Who was on behalf of Cisco?
8 MR. NEUKOM: Objection. Privilege.
9 MR. FERRALL: I'm just asking for the
10 name. 13:49:27
11 MR. NEUKOM: I understand.
12 MR. FERRALL: Okay.
13 MR. NEUKOM: You should answer that
14 question to the extent you can do so without
15 disclosing attorney-client communications. 13:49:33
16 THE WITNESS: My understanding was that
17 Len and Sandy were involved in those discussions.
18 BY MR. FERRALL:
19 Q Do you know who was involved in the
20 discussions on the Stanford side? 13:50:16
21 A No, I don't.
22 Q Was there ultimately a resolution reached
23 between Stanford and Cisco?
24 A Yes.
25 Q Do you know the terms of that resolution? 13:50:36

1 A I do not know the precise terms. 13:50:42

2 Q What's your understanding of the general

3 terms?

4 A Cisco obtained a license to the software

5 and perhaps -- and the MEIS in exchange for paying 13:51:05

6 a -- paying a sum of money to Stanford.

7 Q When you said the software and the MEIS,

8 what's the MEIS?

9 A You asked that question of me before. But

10 to refresh your memory, it's the Massbus-Ethernet 13:51:30

11 Interface Subsystem.

12 Q I didn't know that's how you pronounce it.

13 M-E-I-S?

14 A Right.

15 MR. FERRALL: I didn't realize that. 13:51:39

16 Thank you for clarifying that.

17 Actually, we can take a quick break.

18 MR. NEUKOM: Okay.

19 THE VIDEO OPERATOR: Going off the record,

20 the time is 1:52 p.m. 13:51:57

21 (Recess, 1:52 p.m. - 2:03 p.m.)

22 THE VIDEO OPERATOR: Back on the record.

23 The time is 2:03 p.m.

24 MR. FERRALL: Let's mark this as the next

25 exhibit. 14:03:07

1 address we were referring to. But we chose "DECnet 15:41:13
2 address."

3 It became clear that much more -- that we
4 were becoming a multi-protocol router. We were
5 adding other protocols into the box, into the 15:41:27
6 software.

7 And I had -- I value -- I value the
8 aesthetic of having a symmetric-looking command line
9 expression, symmetric hierarchy. It was clear we
10 were heading towards a hierarchy. 15:41:52

11 So at some point after DECnet and perhaps
12 a few other protocols to make things look very
13 similar, we started prefacing our IP-only commands
14 with "IP." And that gave a very -- what I thought
15 was a very elegant, symmetric, elegant way of 15:42:16
16 referring to different protocols within a
17 multi-protocol router.

18 So that is the history of the "IP address"
19 command.

20 Q Okay. My question was simpler. I 15:42:36
21 appreciate that answer. But my question was a
22 little simpler than that, but let me ask it a
23 different way.

24 You had heard of the term "IP address"

25 before you joined Cisco, hadn't you? 15:42:51

1 MR. NEUKOM: Objection. Vague and asked 15:42:59
2 and answered.
3 THE WITNESS: I suppose I had. When one
4 is talking about different networking protocols, one
5 needs to clarify which networking protocol one is 15:43:10
6 talking about. So it was probably terminology that
7 was in the air.
8 BY MR. FERRALL:
9 Q Does the same go for "IP host," also? You
10 had heard that before you joined Cisco? 15:43:29
11 MR. NEUKOM: Objection. Misstates prior
12 testimony.
13 THE WITNESS: The original form of the
14 "host" command was just "host command." It was
15 another one that had to distinguish, in a 15:43:41
16 multi-protocol world, in a multi-protocol piece of
17 software, what you were talking about.
18 It would have looked very odd in a
19 multi-protocol router that there was one protocol
20 that wasn't prefaced by a -- some descriptive 15:44:03
21 keyword.
22 BY MR. FERRALL:
23 Q Following up on that, the purpose of your
24 use of "IP" as the first keyword in that command "IP
25 host" was to distinguish the protocol that it's 15:44:33

1 referring to? 15:44:36

2 A That was the aesthetic choice I made.

3 MR. NEUKOM: Objection. Mischaracterizes
4 prior testimony.

5 THE WITNESS: There were many possible 15:44:49

6 ways of doing it. As I indicated, I could perhaps

7 take a look at an address and then infer what it

8 was. But that was not the choice that I made at the

9 time.

10 BY MR. FERRALL: 15:45:07

11 Q What were the alternative commands that

12 you considered for "IP host"?

13 A "Name." "Name" was certainly one of the

14 possible candidates. "Network system" or

15 "system" -- there are many, many words that one 15:45:51

16 could use to refer to all sorts of different things.

17 Q Okay. But now you're talking about

18 alternatives for the word "host," right?

19 A Um-hum.

20 Q Okay. You didn't -- you're not the first 15:46:08

21 one to use the word "host," are you?

22 A No.

23 Q I mean, "host" had been used for -- well

24 before you joined Cisco to refer to a computer host.

25 It's a conventional term, right? 15:46:29

1 MR. NEUKOM: Objection. Vague, compound, 15:46:31
2 foundation, and calls for opinion testimony.
3 THE WITNESS: It was one of the
4 possibilities that I had -- that I had.
5 BY MR. FERRALL: 15:46:46
6 Q And "host" was the term that was used in
7 the commands in the software that came from
8 Stanford; is that right?
9 MR. NEUKOM: Objection. Mischaracterizes
10 prior testimony. 15:47:13
11 THE WITNESS: I had implemented the "host"
12 command while I was at Stanford.
13 BY MR. FERRALL:
14 Q Okay. And what did you -- so did you
15 decide to use the word "host" for the command on the 15:47:27
16 software you worked at while you were employed by
17 Stanford?
18 MR. NEUKOM: Objection. Vague.
19 THE WITNESS: Could you restate that
20 question? 15:47:50
21 BY MR. FERRALL:
22 Q Sure.
23 For the software that -- strike that.
24 For the gateway TIP software that you
25 worked on while you were employed at Stanford, was 15:48:02

1 it you who decided to use the word "host" for that 15:48:06
2 command?
3 A It was -- it was my decision.
4 Q Okay.
5 A I believe it was. I believe I -- yes, it 15:48:16
6 was my decision.
7 Q And do you know how you came to choose
8 that word?
9 A It was -- it was terminology that was in
10 the air at the time. 15:48:42
11 Q And at some later point -- let me ask you,
12 so when did you decide to append "IP" to the "host"
13 command?
14 MR. NEUKOM: Objection. Mischaracterizes
15 prior testimony. 15:49:08
16 THE WITNESS: Sometime after we had left
17 Stanford and after we had started putting support
18 for other protocols into the system.
19 BY MR. FERRALL:
20 Q Can you provide a more specific date? 15:49:37
21 A Not --
22 MR. NEUKOM: Objection. Asked and
23 answered.
24 THE WITNESS: Sometime within the 1987 to
25 1988 time frame. 15:50:03

1 BY MR. FERRALL: 15:50:10

2 Q Okay. And the purpose of using the "IP"
3 keyword before "host" was to distinguish this
4 command from a "host" command that might pertain to,
5 for example, the DECnet protocol instead? 15:50:31

6 MR. NEUKOM: Objection. Asked and
7 answered and mischaracterizes prior testimony.

8 THE WITNESS: I felt that symmetry and
9 consistency within the command set was something
10 that would be -- was desirable, and we adopted the 15:50:59
11 convention of finding a -- an initial keyword that
12 would describe the basic protocol that we were
13 configuring.

14 BY MR. FERRALL:

15 Q So do all of the commands in the Cisco CLI 15:52:22
16 that begin with "IT" -- sorry. Strike that.
17 Do all of the Cisco CLI commands that
18 begin with the keyword "IP" indicate that those
19 commands are for the IP protocol as opposed to some
20 other protocol? 15:52:46

21 MR. NEUKOM: Objection. Compound.

22 THE WITNESS: That is the generally
23 understood convention.

24 BY MR. FERRALL:

25 Q Are you aware of pre-1986 RFCs that 15:53:38

1 BY MR. FERRALL: 16:08:17

2 Q Okay. Do you have any other recollection
3 as to who actually received the software from
4 Mr. Hedrick?

5 A No. 16:08:22

6 Q Tell me how -- strike that.

7 Do you believe that you created the
8 command "IP access list"?

9 MR. NEUKOM: Objection. Vague.

10 THE WITNESS: I -- yes. 16:10:20

11 BY MR. FERRALL:

12 Q What functionality does that implement?

13 A It -- the "access list" command, which I

14 implemented at Stanford, the original form at

15 Stanford was a sequence of addresses and subnet 16:10:51

16 masks or -- in a mask, not a subnet mask but a mask,

17 saying which bits to ignore in the address.

18 And you provide a list of these items and
19 give it a number. I chose -- I chose 1, 2, 3, 4, up
20 to 99, or something like that. 16:11:35

21 And then if you assigned it to a terminal
22 line, it could restrict what computers -- what
23 addresses somebody could connect to from that
24 particular terminal line.

25 You could also assign it to a network 16:11:59

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1 the like, or "database lookup" or... 16:16:59

2 BY MR. FERRALL:

3 Q Did you coin the term "domain lookup"?

4 A I decided to use that as a command

5 expression within the software, yes. 16:17:21

6 Q I'll ask the question one more time. I'm

7 asking you if you coined the term "domain lookup."

8 MR. NEUKOM: Objection. Asked and

9 answered and vague.

10 THE WITNESS: I did not. 16:17:43

11 BY MR. FERRALL:

12 Q Do you know who did?

13 A No idea.

14 Q When was -- to your knowledge, when was
15 the term "routing" ever used in conjunction with the 16:18:41
16 Internet protocol?

17 MR. NEUKOM: Objection. Vague and
18 foundation.

19 THE WITNESS: I don't know when the term
20 "routing" was used. 16:19:05

21 BY MR. FERRALL:

22 Q Were people in the field talking about
23 routing in connection with IP before you joined
24 Cisco?

25 MR. NEUKOM: Objection. Vague, compound. 16:19:24

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1 BY MR. FERRALL: 17:39:52

2 Q Well, you were aware that others in the
3 computer field used the word "host," right, before
4 you did?

5 MR. NEUKOM: Objection. Foundation and 17:40:02
6 vague.

7 THE WITNESS: I was not aware of anybody
8 that was using that term in a command expression in
9 a router or gateway, as we called it then.

10 BY MR. FERRALL: 17:40:25

11 Q That wasn't my question. My question was,
12 you were aware of people in the field of computing
13 using the word "host," right, before you used it?

14 MR. NEUKOM: Same objections and asked and
15 answered. 17:40:46

16 THE WITNESS: I was aware of people using
17 the word "host" in the computer field.

18 BY MR. FERRALL:

19 Q Before you used it?

20 A Yes. 17:41:04

21 Q Now, according to your counsel, the
22 command "show host name" was created substantially
23 later; is that -- am I right about that?

24 MR. NEUKOM: Objection to form.

25 THE WITNESS: Are you asking me or my 17:41:41

1 A It seemed -- it seemed aesthetically 17:49:52
2 pleasing to me. It was something that was
3 descriptive of an action that I wanted to take that
4 was a fairly generic action, a fairly common action.

5 Q What does "banner MOTD" mean? 17:50:47

6 A MOTD is message of the day.

7 Q Did you make up that acronym?

8 A No, I did not.

9 Q Who did?

10 A I don't know. 17:51:07

11 Q Did you coin the term "banner" as an
12 operating system command?

13 MR. NEUKOM: Objection. Vague.

14	THE WITNESS: I simply implemented the	
15	command.	17:51:37

16 BY MR. FERRALL:

17 Q Are you aware of operating systems in
18 existence before you joined Cisco that used the
19 command "banner"?

20 A I don't recall any at this point. 17:51:52

```
21          Q   When did you come up with the command
22          "banner MOTD"?
```

23	A	The command that came first was just	
24		"banner," and its function was to print a vacant	
25		terminal message on a terminal and to apply some	17:52:26

1 administrative distance was the tie-breaker. 18:01:16

2 Q Sorry. I'm going to jump back to ARP.

3 There's a term you use associated with

4 ARP, "ARP cache." We talked about that earlier in

5 looking at one of the "clear" commands, right? 18:01:52

6 Where did the term "ARP cache" come from?

7 A The cache is a -- logically a list of

8 items. An ARP cache would be a list of ARP requests

9 that have been satisfied, including their MAC

10 addresses and how long since the last time we'd seen 18:02:37

11 a -- the router had seen an ARP request go by for

12 that particular source address.

13 That sort of computer science concept of a

14 cache is found all over.

15 Q One of the commands that is indicated that 18:03:14

16 you authored is the command "boot system."

17 Had you ever heard someone use the words

18 "boot system" together before you joined Cisco?

19 MR. NEUKOM: Objection. Vague.

20 THE WITNESS: I had heard phrases like 18:03:45

21 "boot the system up," "reboot the system," "reload

22 the system," "start the system," "restart the

23 system."

24 (Exhibit 43 was marked for identification

25 and is attached hereto.) 16:48:10

1 Mr. Tjong. If you're okay with it, I'd like to just 18:14:53
2 do a stipulation across the case that both sides
3 have the 30-day review and errata right for all
4 transcripts regardless whether counsel puts it on
5 the record at the depo as a two-way street. 18:15:04

6 MR. FERRALL: That's fine. I thought it
7 existed as a matter of procedure anyway. So that's
8 fine.

9 MR. NEUKOM: I hope you're right, but glad
10 to have the stipulation, even if it's unnecessary. 18:15:17

11 MR. FERRALL: Okay.

12 MR. NEUKOM: Thanks very much.

13 THE VIDEO OPERATOR: This concludes
14 today's videotaped deposition of Mr. Kirk Lougheed.
15 We're off the record at 6:15 p.m. Thank you. 18:15:25

16 (TIME NOTED: 6:15 p.m.)

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I, KIRK LOUGHEED, do hereby declare under penalty of perjury that I have read the foregoing transcript; that I have made any corrections as appear noted, in ink, initialed by me, or attached hereto; that my testimony as contained herein, as corrected, is true and correct.

EXECUTED this _____ day of _____,
2015, at _____, _____.
(City) (State)

KIRK LOUGHEED

1 I, the undersigned, a Certified Shorthand
2 Reporter of the State of California, do hereby
3 certify:

4 That the foregoing proceedings were taken
5 before me at the time and place herein set forth;
6 that any witnesses in the foregoing proceedings,
7 prior to testifying, were administered an oath; that
8 a record of the proceedings was made by me using
9 machine shorthand which was thereafter transcribed
10 under my direction; that the foregoing transcript is
11 a true record of the testimony given.

12 Further, that if the foregoing pertains to
13 the original transcript of a deposition in a Federal
14 Case, before completion of the proceedings, review
15 of the transcript [X] was [] was not requested.

16 I further certify I am neither financially
17 interested in the action nor a relative or employee
18 of any attorney or any party to this action.

19 IN WITNESS WHEREOF, I have this date
20 subscribed my name.

21
22 Dated: 11/25/2015

23 
24

25 CARLA SOARES

CSR No. 5908

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